

**BERKELEY COUNTY**  
Early Action Plan for the 8-Hour Ozone Standard  
March 2004

## **Background**

In 1997, the Environmental Protection Agency (EPA) revised the National Ambient Air Quality Standard (NAAQS) for Ozone from a one-hour standard to an 8-hour standard. This was done to reflect the latest understanding of the effects of ozone exposure and provide public health protection with adequate margin of safety. EPA will be designating areas as attainment (meeting the standard) or non-attainment (not meeting the standard) in April of 2004. This designation will be based on the most recent three years of monitoring data (i.e., 2001, 2002, 2003). The Department of Health and Environmental Control (DHEC) has an intensive monitoring network covering the state and routinely monitors for ozone during the months of April through October. This time period is often referred to as the "Ozone Season." If an area is designated non-attainment, the Clean Air Act (CAA) requires states to revise their State Implementation Plan (SIP) outlining how the area will return to attainment within a certain time period. If EPA designates areas in South Carolina as non-attainment in April of 2004, a revision to the South Carolina SIP will be due no later than 2007. Additionally, once an area is designated as non-attainment, the CAA has specific requirements that must be implemented. These requirements affect industry, economic development, and transportation. One requirement, Non-attainment New Source Review sets out the level of emissions reductions required for new and modified industrial facilities. Another requirement of non-attainment areas is to coordinate local transportation and air quality planning to ensure that transportation plans, programs and projects are consistent with air quality goals. According to the CAA, transportation plans, programs, and projects cannot create new violations of the Federal air quality standards; increase the frequency or severity of existing violations of the standard; or, delay attainment of standards.

The above approach is commonly referred to as the "traditional" approach. While safeguards for areas to return to attainment are included, certain prescriptive requirements may not be appropriate for all areas designated non-attainment for the 8-hour ozone standard. As a result, EPA provided an option for areas that were meeting the one-hour standard to attain the 8-hour ozone standard by December 31, 2007, and obtain cleaner air sooner than currently federally mandated. This option offers a more expeditious time frame for achieving emissions reductions, while providing "fail-safe" provisions for the area to revert to the traditional SIP process if specific milestones are not met. EPA will move forward with the designation process (attainment or non-attainment) but will defer the effective date, thus the prescriptive requirements of non-attainment designations, provided all terms and conditions of an Early Action Compact (EAC) are being met.

Forty-five counties in South Carolina elected to participate in the development of an Early Action State Implementation Plan (EAP). Participants in the EAC include the county, DHEC and the EPA. All of these parties agree to work together to implement federal, state and local emissions control measures that will allow the non-attainment areas to attain the 8-hour ozone standard earlier and therefore avoid implementing costly prescriptive measures. The EAC requires that all counties submit a local Early Action Plan to DHEC by March 31, 2004.

Although the County is not a potential area to be designated non-attainment for the 8-hour ozone standard, other areas in South Carolina may be designated non-attainment. As air knows no boundaries, implementation of emission reduction strategies and support of federal and state rules and regulations will help to provide cleaner air sooner to citizens of South Carolina.

### **What is Ozone?**

Ozone is a gas that occurs both in the Earth's upper atmosphere and at ground level. Ozone is one of six criteria pollutants used by the EPA as an indicator of air quality. Depending on where ozone is found, it can be good or bad. Occurring naturally in the upper atmosphere, ozone acts as a shield from the sun's harmful ultraviolet rays. However, ground-level ozone is a concern during the summer months when the weather conditions are favorable for producing ozone. Ozone is formed by chemical reactions between volatile organic compounds (VOCs) and oxides of nitrogen (NOx) in the presence of sunlight. Ozone is a major ingredient of smog.

### **Ozone Health Effects**

Ozone can cause permanent damage to the respiratory system. Active children are at highest risk from ozone exposure because they often spend a large amount of time outdoors. Active adults of all ages who exercise or work outdoors have an increased risk of exposure to elevated levels of ozone. People with asthma or other respiratory diseases are particularly sensitive to ozone exposure.

### **Sources of NOx and VOCs**

NOx and VOCs come from emissions from the following sources: stationary, area, mobile and natural. Stationary sources include larger permitted industry and power plants. Area sources are small, stationary and non-transportation sources that collectively contribute to air pollution. Area sources include gas stations (emit NOx) and dry-cleaners (emit VOCs). Mobile sources are divided into two categories, on-road and off-road. The off-road mobile sources include trains, ships, boats, airplanes, lawn equipment, and construction equipment. On-road mobile sources include cars, trucks, and buses. Natural sources for VOCs are released from vegetation, mostly trees in South Carolina. Natural sources for NOx are very rare and include emissions from soil, lightning, and oceans.

### **Stakeholder Involvement**

Refer to the progress reports submitted every six months for information regarding the stakeholder process and a complete listing of the stakeholder meetings and public outreach initiatives.

Staff most recently met in January 2004 to begin finalizing the County's list of emission strategies by dividing the list into first, those strategies already in place and/or will be implemented by April 2005 and secondly, those strategies the County would like to continue researching for future implementation (i.e., the purchase of hybrid vehicles to replace "outgoing" vehicles in the County's fleet). This staff meeting was followed by presentation to County Council's Committee on Human Services in February and March.

Continued meetings are planned with staff, County Council and the Berkeley Charleston Dorchester Council of Governments to research and exchange ideas and present information.

## **Emission Reduction Strategies**

Through the development and implementation of this plan, local emission reduction strategies that are economically feasible and that make sense for the County will be implemented no later than April 2005. In doing so, these efforts should assist the state in achieving the 8-hour ozone standard by December 31, 2007, and maintaining the standard beyond 2012.

A number of federal control measures are in place and/or will be phased in over the next several years. These programs include the Tier II and Low Sulfur Gasoline and also the NO<sub>x</sub> SIP call. All of these programs have been developed to help areas attain air quality standards.

The State is also proposing new and/or modifications to regulations that will assist non-attainment areas. The State programs could include a regulation that would result in VOC and NO<sub>x</sub> reductions; modifications to the open burning regulations and a process to assure transportation plans, programs, and projects consider air quality goals.

Attachment 1 contains a list of emission reduction strategies that may be reasonably implemented by the County dependent upon resource and political restraints. While it may not be possible to determine emissions reductions for each of the strategies included, directionally sound strategies have been selected and the County anticipates the cumulative impact of adopting each of these strategies will assist in maintaining the standard.

## **Maintenance**

The County will continue to address strategies that will assist in long-term maintenance of the 8-hour ozone standard. DHEC will continue to provide the air quality monitoring necessary to determine attainment of the 8-hour ozone standard. Yearly, at the end of each ozone season, there will be a review and evaluation to determine the effectiveness of the strategies adopted. If necessary, additional emission reduction strategies may be adopted. Maintenance of the standard will depend upon the success of emission reduction strategies implemented as well as federal and state initiatives.

Early Action Compact Plan – March 2004  
List of Emission Reduction Strategies

**BERKELEY COUNTY**

According to the latest 8-hour ozone monitoring data, Berkeley County should maintain current attainment for the 8-hour ozone standard. However, in an effort to assist other areas in South Carolina and in the interest of public health and the environment, in December 2002, Berkeley County agreed to participate in the 8-hour ozone early action process. Therefore, based on stakeholder consultation and taking into consideration resource and political constraints, the following emission reduction strategies are currently being conducted with an additional list of strategies under consideration. Because this Plan is being submitted during the County's budget development process for FY2004-2005, to list strategies not currently on-going may result in the County not adhering to its commitment to the Early Action Compact. Therefore, Berkeley County will continue to evaluate possibilities to improve the air quality within the County and will continue to implement one or more of the following measures listed within the two tables as effective with regards to resource and political constraints.

Measure under consideration	Detailed description of measure	Current assessment of emission reductions	Proposed date for implementation	Geographic area and/or local government
Awareness	Joined and currently participate in the SC Early Action Plan for 8-hour ozone standard	Directionally Sound	December 2002 On-going	Countywide
Awareness	Meet with SCDHEC staff and County staff to collect and disseminate information including ideas and suggestions that will attempt to maintain current attainment for County. Forwarded information to municipalities, the Water and Sanitation Authority and the School District within the County.	Directionally Sound	June and October 2003, February 2004 On-going	Countywide
Awareness	Information for public available with applicable web links on the County's website	Directionally Sound	June 2003 On-going	World Wide Web
Awareness - Energy	Current policy of turning off lights, computers and HVAC units daily of County equipment in accordance with Energy Management Guidelines.	Directionally Sound	June 2003 On-going	County owned facilities
Awareness - Energy	Best management practices in accordance with Energy Management Guidelines (HVAC control systems)	Directionally Sound	On-going	County owned facilities
Ozone Action Coordinator	Designated County staff person responsible for ozone education/outreach and dissemination of ozone standard.	Directionally Sound	March 2003	Countywide

Land Use	Zoning ordinance requires landscaped buffers between unlike uses, including trees and shrubs.	Directionally Sound	August 2001 On-going	Unincorporated areas of County
Land Use	Endorse cooperative initiative between County, Conservation District and Conservation Trust of “Greenspace Initiative” that promotes the protection and conservation of recommended areas on a strictly voluntary basis.	Directionally Sound	September 2000 On-going	Countywide
Conservation	Implement “Greenspace Initiative”; promote the protection and conservation of properties in accordance with the plan established in September 2000. Currently, 44% of the County is “green/blue space” (33% land, 11% water) in conservation.	Directionally Sound	September 2000 On-going	Countywide
Land Use	Encourage the development of non polluting industries	Directionally Sound	On-going	Countywide
Conservation	Promote and encourage increased activity of recycling goods (plastics, metal, glass, etc.) through the Berkeley County Water & Sanitation Authority	Directionally Sound	On-going	Countywide
Conservation	Berkeley County Water & Sanitation Authority actively involved in composting and educational programs for backyard composting.	Directionally Sound	On-going	County landfill and countywide
Conservation	Berkeley County Water & Sanitation Authority installed passive gas vents during the closure of the County’s “Pre-Subtitle D Landfill”.	Directionally Sound	Prior to 2004	County landfill
Mobile Sources	Replaced gasoline golf cart with electric model.	Directionally Sound	2002	Cypress Gardens
Mobile Sources	Purchased two replacement vehicles for Sheriff’s department with Flex Fuel (ethanol mixture or regular fuel) alternative.	Directionally Sound	February 2004	County Sheriff’s department
Mobile Sources	Operate on scheduled maintenance of vehicles to ensure best management practices are being utilized to decrease the buildup of pollutants in engines.	Directionally Sound	On-going	County’s Maintenance Garages
Mobile Sources	Support staggered work schedules to mitigate commuter traffic congestion and provide citizen service	Directionally Sound	On-going	Applicable County departments

This second list of emission reduction strategies include areas of concern and ideas the County continues to research and consider as budgetary means allow. However, this list of measures is being presented as strategies which may be implemented by April 2005, rather beyond this timeframe.

Measure under consideration	Detailed description of measure	Current assessment of emission reductions	Proposed date for implementation	Geographic area and/or local government
Awareness - Energy	Purchase "Green Power"	Directionally Sound	When reasonably cost effective	County owned facilities where available
Awareness - Energy	Participate in "Rebuild South Carolina" (County has participated in the past)	Directionally Sound	When reasonably cost effective	Countywide
Awareness- Energy	Install solar heat system in new County facilities or those to be renovated.	Directionally Sound	When reasonably cost effective	New County owned facilities or those to be renovated
Mobile Sources	Consider continued replacement of gasoline golf carts with electric golf carts (current concern is payload capacity)	Directionally Sound	When reasonably cost effective	Specific County departments
Mobile Sources	Consider purchase of hybrid vehicles for departments that primarily utilize their vehicles for traveling on highways.	Directionally Sound	When reasonably cost effective	Specific County departments
Mobile Sources	Support development of park and ride facilities within the tri-county region	Directionally Sound	When reasonably cost effective	Regional
Conservation	Extending current pilot program for the installation of flares (to burn and neutralize any potentially harmful emissions) at the closed "Pre-Subtitle D Landfill" and if successful, additional flares will be purchased and installed.	Directionally Sound	When program is determined and reasonably cost effective for expansion of program	County landfill

Conservation	Berkeley County Water & Sanitation Authority in preliminary planning stages of long range program for the installation of a landfill gas extraction system including a gas to energy (LFGTE) facility which would also help minimize potentially harmful emissions at its operational municipal solid waste landfill.	Directionally Sound	When reasonably cost effective	County municipal landfill
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